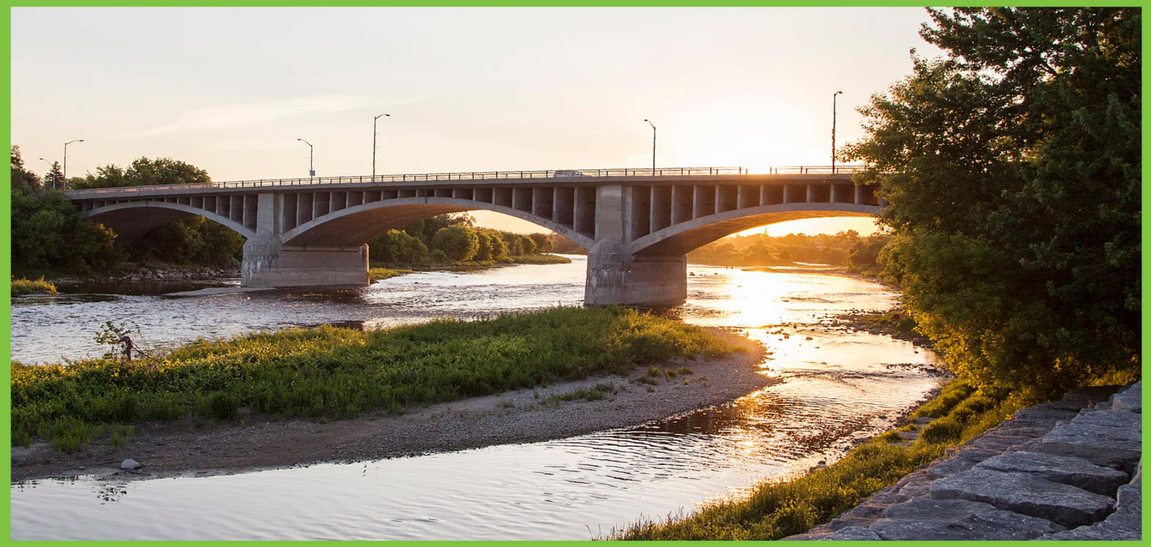
Appendix ‘Q’ – PIC #2 Materials

GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
650 WOODLAWN RD. W., BLOCK C, UNIT 2, GUELPH ON N1K 1B8 P: 519-824-8150 F: 519-824-8089 WWW.GMBLUEPLAN.CA



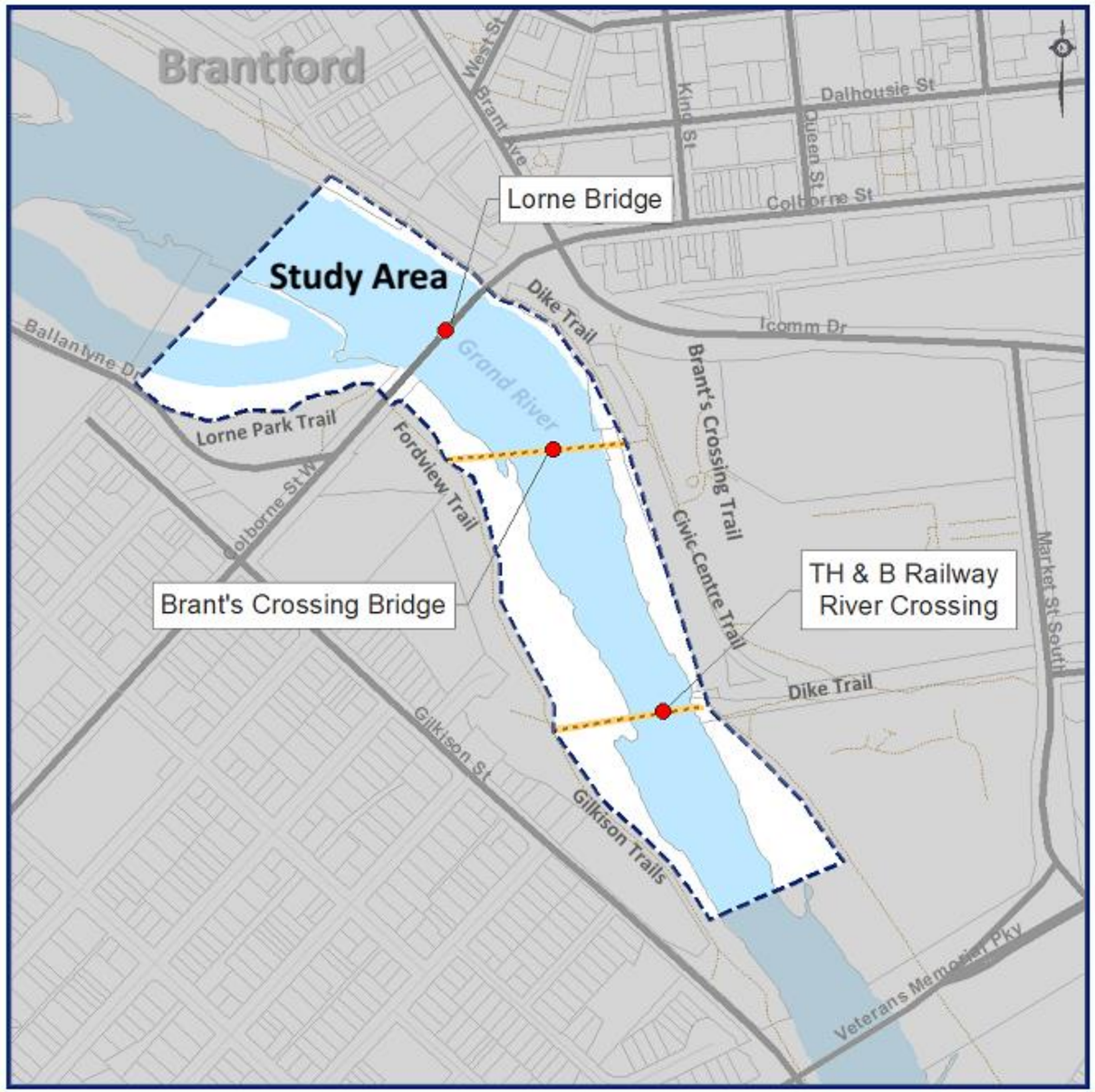
CITY OF BRANTFORD

THREE GRAND RIVER CROSSINGS

MUNICIPAL CLASS EA

Virtual Public Information Centre
April 2021

Project Overview and Background



The City of Brantford is conducting a Municipal Class Environmental Assessment (MCEA) to review alternatives for three bridges over the Grand River, including the Lorne Bridge, Brant's Crossing Bridge and the TH&B Crossing Bridge.

The purpose of this Virtual Public Information Centre (PIC) is to present the existing conditions, evaluation, and recommended solution and offer an opportunity for interested parties to review and provide comments to the Project Team.

Information on the Project Study Area is available at:

www.brantford.ca/threegrandrivercrossings

Project Overview and Background

Municipal Class Environmental Assessment Process

- This study is being undertaken as a Schedule “B” Municipal Class Environmental Assessment.
  - Two phase planning process under the Ontario EA Act.
  - Primary goal is to minimize, mitigate, or avoid impacts on the community and surrounding environment.

Phase 1:
Problem or Opportunity

1. Identify problem and/or opportunity.
2. Issue Notice of Study Commencement.

Phase 2:
Alternative Solutions

1. Develop alternative solutions to the problem and/or opportunity.
2. Public Information Centre #1.
3. Inventory natural, social, and economic environments.
4. Evaluate alternative solutions
5. Identify recommended solutions
6. Select recommended solution.
7. **Public Information Centre #2.**
8. Review and confirm choice of schedule.

We are here

Description of Existing Structures

Lorne Bridge

- Three unique structures, the oldest of which was originally built in 1924
- No formal cycling lane in the roadway and cyclists typically share the sidewalk with pedestrians
- Requires 30 tonne load limit in winter months
- Requires major structural repairs to maintain the crossing

Brant's Crossing Bridge

- Originally built in 1912 to convey railway traffic and has been converted to carry pedestrian traffic
- Closed since February 2018 following a flooding and ice jam event
- Minor rehabilitation required to open the bridge; however, to remain open beyond approximately 3-5 years, major structural repairs are necessary

TH&B Crossing Bridge

- Originally built in 1893 as a rail crossing bridge but has been converted to carry pedestrian and cyclist traffic
- Was temporarily closed following 2018 ice jam event but later reopened following a structural investigation
- For this structure to remain open beyond approximately 5-10 years, major repairs are necessary

More information about the existing structures is available at:

www.brantford.ca/threegrandrivercrossings

Project Triggers and Objectives

This Class EA study was initiated to identify long-term, holistic solutions to address:

- Deteriorating condition and age-related concerns of the existing structures; and
- Pedestrian, cyclist and vehicular connectivity needs, including those in the Transportation Master Plan.

This Class EA study will:

- Consider a reasonable range of appropriately planned potential solutions;
- Consider potential impacts to social, natural, technical and economic environments;
- Select a preferred solution through a transparent decision-making process; and,
- Encourage public participation throughout the process.

Problem / Opportunity Statement

A) Problem:

- Structural investigations have identified the need for structural repairs to each of the Three Grand River Crossings.

B) Opportunity:

- The City plans to identify the short and long-term plans for the three Grand River crossings. The study will include determining the feasibility of removing the winter load limit on Lorne Bridge and the need for one or both of the TH&B Crossing Bridge and Brant's Crossing Bridge based on an assessment of the technical, economic, social and natural environmental factors, including impacts to the active transportation network and the risks of future flooding events of the Grand River.

Existing Conditions – Archaeology & Cultural Heritage

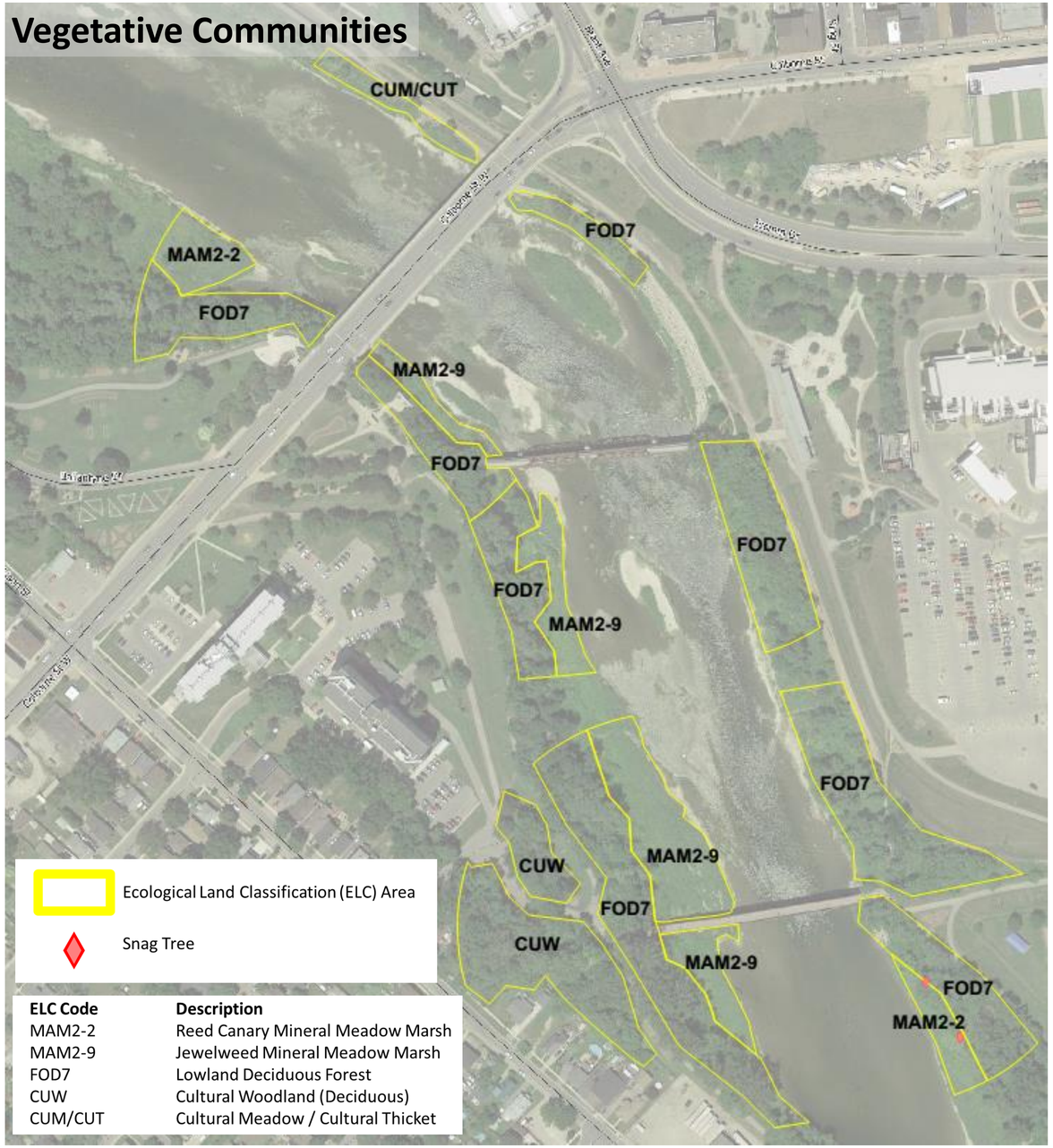
Archaeological Assessment

- Previously disturbed; no further assessment required
- Marine Archaeology Assessment recommended prior to development impacts
- 19th Century Grand River course; permanently wet; no further assessment required
- Stage 2 Archaeological Assessment recommended prior to development impacts

Cultural Heritage Landscape Features

1. Lorne Park with Plaques and interpretive panels
2. Brantford Canoe Club Clubhouses
3. Brantford Armoury, Boer War Monument, & Brant County War Memorial
4. LE&N Railway Station & lines / canal entrance
5. Dam spillway
6. LE&N Rail line
7. Hydro line pylons
8. Presumed line of Brant's crossing
9. TH&B Railway line
10. LE&N Bridge abutments
11. BSAR Bridge (Veteran's Memorial Parkway Bridge)

Existing Conditions – Natural Environment



Summary of Natural Environment Features

Natural Environment Feature	Description
Significant Valleyland / Environmental Control Policy Area	• Grand River valleyland
Significant Wildlife Habitat	• Habitat for monarch and common nighthawk – marsh (MAM-2, MAM2-9) • Habitat for eastern wood-pewee – Lowland Deciduous Forest (FOD7) • Habitat for snapping turtle – Grand River • Regional wildlife corridor – Grand River valleyland • Regionally significant Waterfowl Winter Concentration Area – Grand River
Species at Risk – Endangered or Threatened	• Habitat for tri-colored bat (endangered) – Lowland Deciduous Forest (FOD7) • Habitat for queensnake (endangered) and eastern small-footed myotis (endangered) – Grand River and banks • Habitat for little brown myotis (endangered) and chimney swift (threatened) – structures within study area of Lorne Bridge and TH&B Crossing Bridge
Grand River Conservation Authority (GRCA) Regulated Areas	• Grand River • Unevaluated wetland (MAM2-2)
Fish Habitat	• Grand River

Existing Conditions – Hydraulic Impact Study

- A Hydraulic Impact Study was completed to review the flood behaviour of the Grand River in the vicinity of the three existing bridge crossings and to identify opportunities to enhance hydraulic function of each crossing.
- The Hydraulic Impact Study concluded that:
  - The **Lorne Bridge** meets hydraulic evaluation criteria under both 100-year return period for open water flow and ice jam events. No hydraulic improvement opportunities were present.
  - Both **Brant's Crossing and TH&B Crossing Bridges** are acceptable under 10-year return period open flow events, but not under ice jam conditions. Opportunity to enhance hydraulic performance during ice jam events by raising each bridge by approximately 0.8 m.

Photos from the 2018 Ice Jam Event

Alternative Solutions – Evaluation Framework

Presented at PIC 1

PIC 2

1 Long List of Alternatives for Each Crossing

Develop alternatives for each crossing.

2 Screening

Review each alternative against screening criteria.

3 Shortlist of Alternatives for Each Crossing

Identify feasible alternatives for each crossing.

4 Overall Crossing Strategies

Identify appropriate combinations of short-listed alternatives (one from each structure).

5 Detailed Evaluation

Evaluate Crossing Strategies using detailed evaluation criteria.

Alternatives must be technically and economically viable, and meet the needs of the Problem / Opportunity Statement

Identify Recommended Crossing Strategy

Shortlisting of Alternatives: Lorne Bridge

Category	Criterion	Rehabilitate	Replace
Social	Property Impacts	↑	↓
	Impacts to Connectivity		
	Impacts of Construction		
	Public Health & Safety		
	Aesthetics		
	Cultural Heritage Resources		
Natural	Terrestrial Wildlife & Vegetation	↑	↓
	Aquatic Wildlife & Vegetation		
Technical	Design	↔	↑
	Transportation		
	Constructability		
Economic	Initial Capital Cost (2021 Dollars)	$8.3M	$19M to $37M
	Lifecycle Costs (2021 Dollars)	$33M	$45M to $87M
Summary		Shortlisted	Not Shortlisted

Shortlisted Alternative:
***Rehabilitate* Lorne Bridge**

- Shorter construction duration and requires a smaller construction footprint than replacement, therefore, rehabilitation would pose fewer potential negative impacts to the natural and social environments since the construction would not disturb new areas.
- Estimated to be less costly than replacement.

Note: Rehabilitation will extend the service life of this structure by approximately 25 years, but it will ultimately need to be replaced beyond that time frame. This has been factored in to the 75-year lifecycle cost.

↓	↔	↑
Least Beneficial / Highest Negative Impact	Neutral / Moderate Benefit	Most Beneficial / Lowest Negative Impact

Shortlisting of Alternatives: Brant's Crossing Bridge

Category	Criterion	Decommission		Rehabilitate		Replace & Raise
		Close	Remove	Rehabilitate	Rehabilitate & Raise	
Social	Property Impacts	↓	↓	↔	↔	↔
	Impacts to Connectivity					
	Impacts of Construction					
	Public Health & Safety					
	Aesthetics					
	Cultural Heritage Resources					
Natural	Terrestrial Wildlife & Vegetation	↑	↓	↔	↔	↔
	Aquatic Wildlife & Vegetation					
Technical	Design	↓	↔	↔	↑	↑
	Transportation					
	Constructability					
Economic	Initial Capital Cost (2021 Dollars)	$0.3M	$0.7M	$1.0M	$2.3M	$3.7M
	Lifecycle Costs (2021 Dollars)	$1.0M	$0.7M	$6.4M	$7.7M	$5.5M
Summary		Not Shortlisted	Not Shortlisted	Shortlisted	Shortlisted	Shortlisted

Shortlisted Alternatives: Both *Rehabilitate* Alternatives and *Replace*

- Maintains connectivity
- Maintains views from the crossing
- Improves public health and safety
- Maintains general aesthetics of the area
- Replacement would allow for delineated pedestrian and cycling lanes over bridge
- Decommission has much smaller initial and lifecycle costs

↓ Least Beneficial / Highest Negative Impact

↔ Neutral / Moderate Benefit

↑ Most Beneficial / Lowest Negative Impact

Shortlisting of Alternatives: TH&B Crossing Bridge

Category	Criterion	Decommission		Rehabilitate			Replace & Raise
		Close	Remove	Minor Rehab and Eventual Removal	Rehabilitate	Rehabilitate & Raise	
Social	Property Impacts	↓	↓	↑	↑	↑	↔
	Impacts to Connectivity						
	Impacts of Construction						
	Public Health & Safety						
	Aesthetics						
	Cultural Heritage Resources						
Natural	Terrestrial Wildlife & Vegetation	↑	↓	↔	↔	↔	↓
	Aquatic Wildlife & Vegetation						
Technical	Design	↓	↔	↑	↔	↑	↑
	Transportation						
	Constructability						
Economic	Initial Capital Cost (2021 Dollars)	$0.3M	$0.7M	$0.3M	$0.6M	$1.9M	$3.2M
	Lifecycle Costs (2021 Dollars)	$1.0M	$0.7M	$1.0M	$6.4M	$7.8M	$8.1M
Summary		Not Shortlisted	Not Shortlisted	Shortlisted	Shortlisted	Shortlisted	Not Shortlisted

↓ Least Beneficial / Highest Negative Impact

↔ Neutral / Moderate Benefit

↑ Most Beneficial / Lowest Negative Impact

Shortlisted Alternatives: All "*Rehabilitate*" Alternatives

- Shorter construction duration and a smaller construction footprint than replacement.
- Cultural heritage value retained (until future replacement or decommissioning).
- Fewer potential negative impacts to the natural and social environments since the construction would not disturb new areas.

Shortlisting of Alternatives:
New Pedestrian & Cyclist Crossing Bridge

Category	Criterion	Do Not Construct New Crossing	Construct New Crossing
Social	Property Impacts	↔	↔
	Impacts to Connectivity		
	Impacts of Construction		
	Public Health & Safety		
	Aesthetics		
	Cultural Heritage Resources		
Natural	Terrestrial Wildlife & Vegetation	↑	↓
	Aquatic Wildlife & Vegetation		
Technical	Design	↔	↔
	Transportation		
	Constructability		
Economic	Initial Capital Cost (2021 Dollars)	$0	$4.5M
	Lifecycle Costs (2021 Dollars)	$0	$11M
Summary		Shortlisted	Not Shortlisted

Shortlisted Alternative:
Do Not Construct New Crossing

- Lower impacts related to social, natural, technical, and economic considerations compared to constructing a new crossing

↓	↔	↑
Least Beneficial / Highest Negative Impact	Neutral / Moderate Benefit	Most Beneficial / Lowest Negative Impact

Alternatives for Each Crossing

- **Lorne Bridge**
  - Rehabilitate
  - Replace
- **Brant's Crossing Bridge**
  - Decommission (Remove or Close)
  - Rehabilitate
  - Rehabilitate and Raise
  - Replace & Raise
- **TH&B Crossing Bridge**
  - Decommission (Remove or Close)
  - Minor Rehab and Eventual Removal
  - Rehabilitate
  - Rehabilitate and Raise
  - Replace & Raise
- **New Pedestrian & Cyclist Crossing**
  - Construct
  - Do Not Construct

Legend

- Longlist Alternative included in Shortlist
- Longlist Alternative did NOT proceed to Shortlist

Initial Capital and 75-Year Lifecycle Costs for Short-Listed Alternatives

Capital cost estimates listed below are high level, intended to be used for comparison of alternatives only. A more detailed cost estimate will be prepared for the recommended solution toward the end of this Class EA.

Capital Expenditure (2021 $)	Lorne Bridge	Brant's Crossing Bridge			TH&B Crossing Bridge		
	Rehabilitate	Rehabilitate	Rehabilitate & Raise	Replace & Raise	Minor Rehab and Eventual Removal	Rehabilitate	Rehabilitate & Raise
Year 0 (Initial Capital)	$8.3M	$1.0M	$2.3M	$3.7M	$0.3M	$0.6M	$1.9M
Year 25	+ $3.7M (Rehabilitation)	+$4.5M (Replacement)	+$4.5M (Replacement)	$0.3M (Rehabilitation)	+$0.7M (Removal at Year 15)	+$1.0M (Rehabilitation)	+$1.0M (Rehabilitation)
Year 50	+ $19M or + $37M* (Replacement)	+$0.5M	+$0.5M	$1.0M (Rehabilitation)	N/A	+$4.5M (Replacement)	+$4.5M (Replacement)
Year 75	+ $2M or + $4M* (Rehabilitation)	N/A (Maintenance Only)	N/A (Maintenance Only)	$0.5M (Rehabilitation)	N/A	N/A (Maintenance Only)	N/A (Maintenance Only)

*The existing structure is estimated to require replacement at approximately year 50; the lower cost option would be to replace with a standard girder bridge, and higher cost option would be to replace with a gateway or arch bridge

Detailed Evaluation of Overall Crossing Strategy Alternatives

Overall Crossing Strategy Alternative	Lorne Bridge	Brant's Crossing Bridge	TH&B Crossing Bridge	New Bridge Crossing	Cost (2021$)		Is the Overall Crossing Strategy Alternative Feasible?	
					Initial Capital	Lifecycle		
1	Rehabilitate	Rehabilitate	Minor Rehab and Eventual Removal	Do Nothing	$9.6M	$40M	**YES**	Carried forward to evaluation.
2	Rehabilitate	Rehabilitate	Rehabilitate	Do Nothing	$9.9M	$46M	**YES**	Carried forward to evaluation.
3	Rehabilitate	Rehabilitate	Rehab & Raise	Do Nothing	$11M	$47M	**NO**	Not carried forward to evaluation due to issues with hydraulics*.
4	Rehabilitate	Rehab & Raise	Minor Rehab and Eventual Removal	Do Nothing	$11M	$41M	**YES**	Carried forward to evaluation.
5	Rehabilitate	Rehab & Raise	Rehabilitate	Do Nothing	$11M	$47M	**NO**	Not carried forward to evaluation due to issues with hydraulics*.
6	Rehabilitate	Rehab & Raise	Rehab & Raise	Do Nothing	$12M	$48M	**YES**	Carried forward to evaluation.
7	Rehabilitate	Replace & Raise	Minor Rehab and Eventual Removal	Do Nothing	$12M	$39M	**YES**	Carried forward to evaluation.
8	Rehabilitate	Replace & Raise	Rehabilitate	Do Nothing	$13M	$45M	**NO**	Not carried forward to evaluation due to issues with hydraulics*.
9	Rehabilitate	Replace & Raise	Rehab & Raise	Do Nothing	$14M	$46M	**NO**	Not carried forward to evaluation due to high cost considerations.

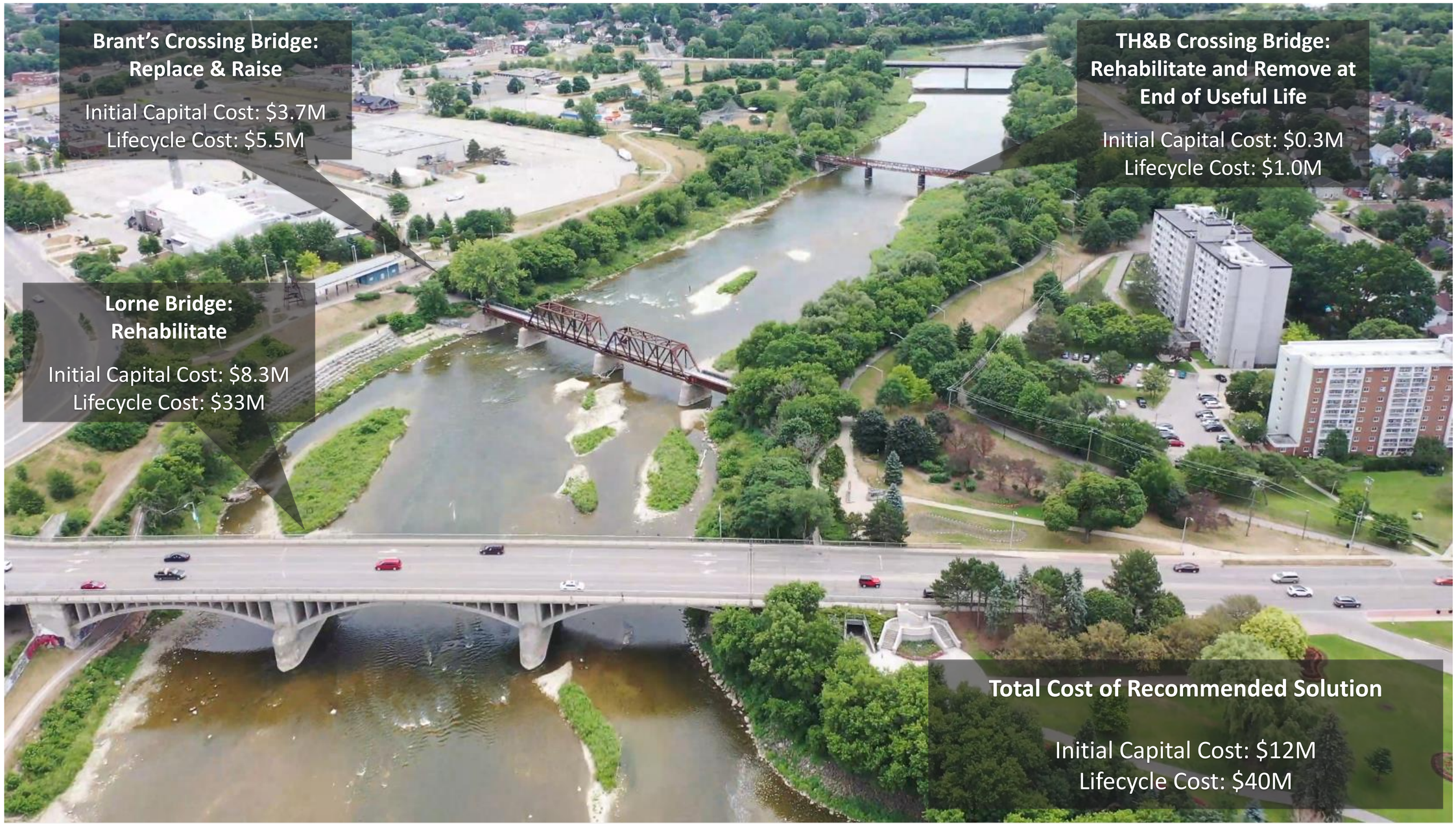
Rehabilitating Lorne Bridge is common among all Crossing Strategy Alternatives and, therefore, the comparative evaluation of strategies will focus on Brant's and TH&B Crossing Bridges.

***** Keeping one of the pedestrian bridges at its existing elevation but raising the other would not reduce concerns related to ice jamming since the lower of the two bridges would continue to limit the flow.

Detailed Evaluation of Crossing Strategy Alternatives

		Strategy 1	Strategy 2	Strategy 4	Strategy 6	Strategy 7
	Brant's	Rehabilitate without Raising	Rehabilitate without Raising	Rehabilitate & Raise	Rehabilitate & Raise	Replace & Raise
	TH&B	Rehabilitate without Raising and Eventual Removal	Rehabilitate without Raising	Rehabilitate without Raising and Eventual Removal	Rehabilitate & Raise	Rehabilitate without Raising and Eventual Removal
Category	**Social**	• Cultural Heritage impacts following removal of TH&B. • Eventual removal of crossing over the Grand River. • Unable to accommodate dedicated cyclist lane on Brant's and existing TH&B cyclist crossing would ultimately be removed.	• Less disruption of historical/cultural heritage features. • Maintain two pedestrian crossings over the Grand River. • Unable to accommodate dedicated cyclist lane on Brant's.	• Cultural Heritage impacts following removal of TH&B. • Eventual removal of pedestrian crossing over the Grand River. • Unable to accommodate dedicated cyclist lane on Brant's and existing TH&B cyclist crossing would ultimately be removed.	• Less disruption of historical/cultural heritage features. • Maintain two pedestrian crossings over the Grand River. • Unable to accommodate dedicated cyclist lane on Brant's.	• Cultural Heritage impacts following removal of TH&B. • Eventual removal of pedestrian crossing over the Grand River. • Incorporate dedicated cycling lane on Brant's Crossing. • Cultural Heritage effects of removing existing Brant's Crossing Bridge to be mitigated.
		↓	↑	↓	↔	↔
	Natural	• Temporary impacts can be mitigated.	• Temporary impacts can be mitigated.	• Temporary impacts can be mitigated.	• Temporary impacts can be mitigated.	• Temporary impacts can be mitigated.
		↔	↔	↔	↔	↔
	Technical	• Increased risk as crossings would not be raised to meet MTO Design Criteria for the evaluated ice jam events. • Less intensive rehabilitation required for TH&B.	• Increased risk as crossings would not be raised to meet MTO Design Criteria for the evaluated ice jam events.	• Reduced risk as Brant's would be raised to meet MTO Design Criteria for the evaluated ice jam events. Short term risk of TH&B not being raised. • Increased constructability challenges with raising Brant's, but less intensive rehabilitation required for TH&B.	• Reduced risk as crossings would be raised to meet MTO Design Criteria for the evaluated ice jam events. • Increased constructability challenges with raising bridge.	• Reduced risk as Brant's would be raised to meet MTO Design Criteria for the evaluated ice jam events. Short term risk of TH&B not being raised. • Increased constructability challenges with replacing Brant's, but less intensive rehabilitation required for TH&B.
		↔	↓	↑	↔	↑
	Economic (for comparison, costs exclude Lorne Bridge)	• Low initial capital cost. • Low lifecycle cost.	• Low initial capital cost. • High lifecycle cost.	• Average initial capital cost. • Low lifecycle cost.	• Highest initial capital cost. • Highest lifecycle cost.	• High initial capital cost. • Low lifecycle cost.
		Initial Capital Cost: $1.3M Lifecycle Cost: $7.1M	Initial Capital Cost: $1.6M Lifecycle Cost: $13M	Initial Capital Cost: $2.6M Lifecycle Cost: $8.4M	Initial Capital Cost: $4.1M Lifecycle Cost: $15M	Initial Capital Cost: $4.0M Lifecycle Cost: $6.3M
	Summary	↔	↔	↔	↓	↑

Recommended Solution: Strategy 7



Summary of Select Frequently Asked Questions

Can Brant's Crossing Bridge be re-opened soon?

- A minor rehabilitation is required in order to re-open the Brant's Crossing Bridge in the short term and could occur following the outcome of this Environmental Assessment. However, more extensive work is required in order to have the bridge remain open beyond approximately 3 to 5 years.

Summary of Select Frequently Asked Questions

What is this history of water or ice levels rising to the underside of the Brant's and TH&B Crossing Bridges?

- According to records back to 1965, river water gauges indicate that in February of 1996 and February 2018 the underside of the bridges were submerged. Additionally, an event in February 1984 was very close to or may actually have risen to the undersides of the bridges.

Summary of Select Frequently Asked Questions

What is a 100-year return period event (or 100-year storm or 100-year flood)? Do they occur only once in 100 years?

- A return period represents the likelihood of a storm event occurring, in any given year. A 100-year return period event has a 1 in 100 chance of occurring, regardless of what happened in the previous year.
- An example would be the chance of pulling the single red jellybean from jar of white jellybeans. The number of total jellybeans in the jar is equal to the return period event referenced. i.e., for a 100-year storm there would be 100 jellybeans in the jar.

Photos from the 2018 Ice Jam Event

Summary of Select Frequently Asked Questions

Would raising Brant's Crossing Bridge and TH&B Crossing Bridge eliminate ice jam issues and risks?

- Raising the two crossings by approximately 0.8 metres reduces the probability of an ice jam event occurring at the bridges to less than 1% in any given year (100-year event).

Summary of Select Frequently Asked Questions

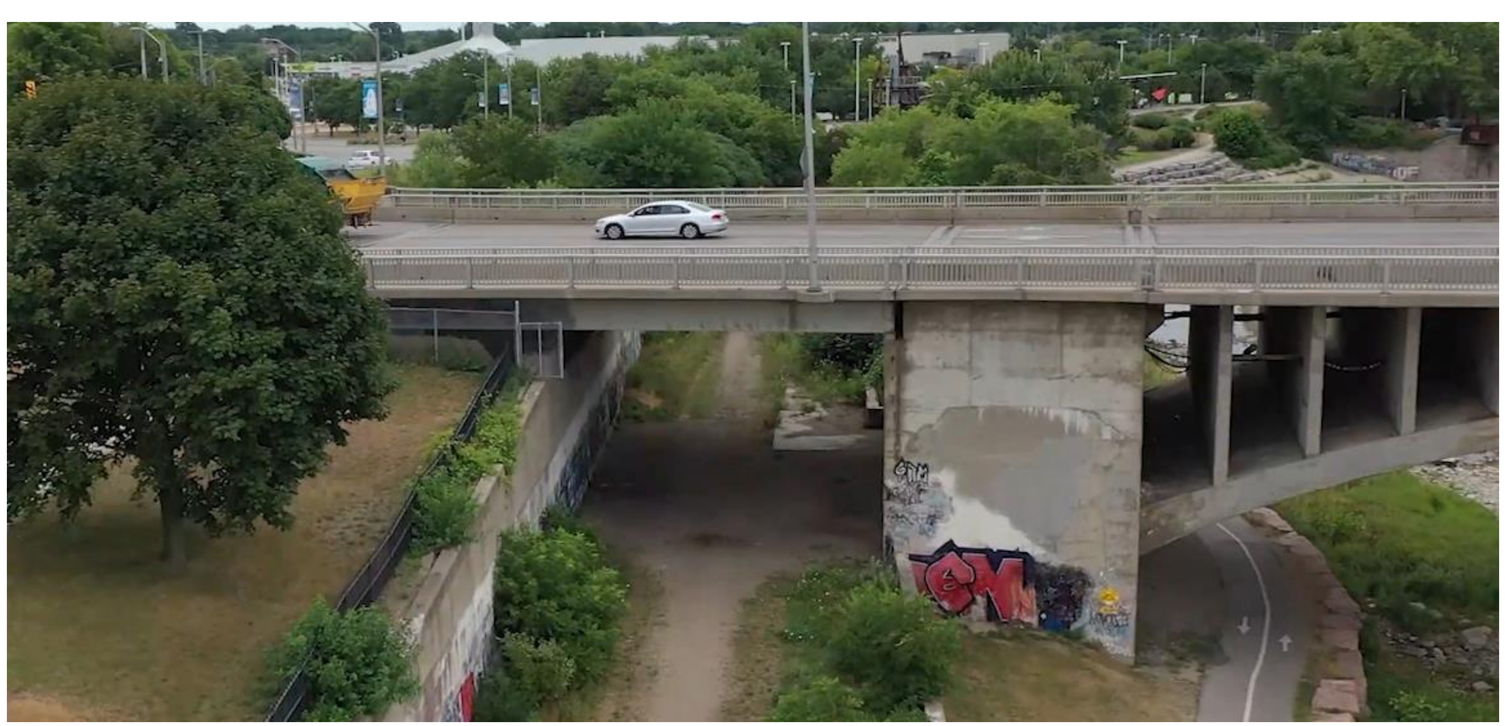
There are concerns with the existing cycling facilities on Lorne Bridge. Can Lorne Bridge accommodate dedicated cycling lanes without reducing vehicular capacity?

- The bridge deck was widened during the construction works in the 1980's and cannot be further widened. Adding dedicated cycling lanes to the bridge would come at the expense of reduced vehicular capacity.

Summary of Select Frequently Asked Questions

There are concerns with the existing shared-use trail under Lorne Bridge, on the east riverbank. Will the trail be improved or realigned?

- Trail alignment and connectivity is being investigated by the City of Brantford, outside of this Class EA. For questions related to the trail, please contact the City of Brantford.



PIC #2 Process

1)	Notice of Public Information Centre #2 first published	March 18, 2021
2)	PIC Presentation posted to project webpage	March 18, 2021
3)	Live Public Information Centre #2 Presentation	April 1, 2021
4)	Public Comment Period	April 1 – April 15, 2021
5)	Question List and FAQs with answers posted to project webpage	April 22, 2021

Next Steps in MCEA Study

Points of Contact

☑	1)	Notice of Study Commencement	March 5, 2020
☑	2)	Public Information Centre #1	May-July, 2020
☑	3)	Public Information Centre #2	April 2021
	4)	Notice of Study Completion	Summer 2021

We Want to Hear from You!

Thank you for participating in the Virtual Public Information Centre.

IF YOU WISH TO SUBMIT COMMENTS OR WOULD LIKE TO BE ADDED TO THE PROJECT MAILING LIST, PLEASE CONTACT:

Gagan Batra
City Project Manager
City of Brantford
100 Wellington Square
Brantford, ON N3T 5R7
519.759.4150 ext. 5426
gbatra@brantford.ca

Jack Turner, P.Eng.
Consultant Project Manager
GM BluePlan Engineering Limited
650 Woodlawn Road West, Block C, Unit 2
Guelph, ON N1K 1B8
519.824.8150 ext. 1237
jack.turner@gmblueplan.ca

Comment Sheets are available at the Three Grand River Crossings website:
www.brantford.ca/threegrandrivercrossings

Comments submitted by **April 15th, 2021** will be considered for the FAQ list posted on April 22, 2021

CITY OF BRANTFORD

THREE GRAND RIVER CROSSINGS

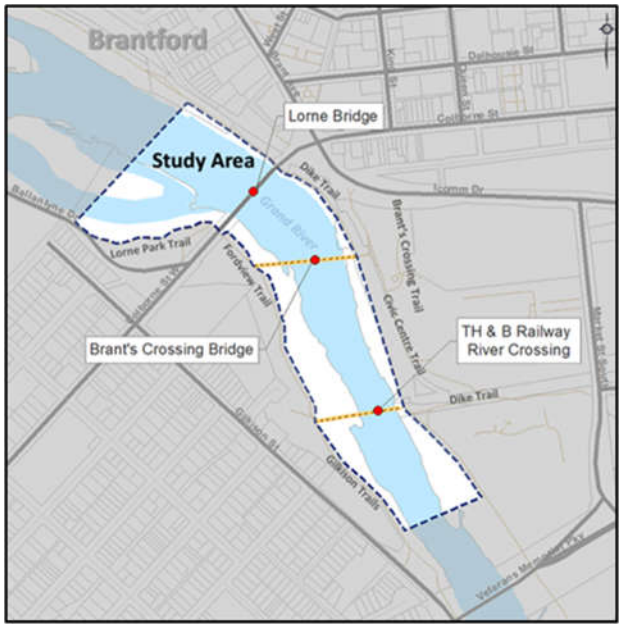
MUNICIPAL CLASS EA

VIRTUAL PUBLIC INFORMATION CENTRE (PIC) 2

FREQUENTLY ASKED QUESTIONS (FAQ) DOCUMENT

FIRST POSTED ON APRIL 22, 2021

1. INTRODUCTION



In March 2020, the City of Brantford initiated a Schedule 'B' Municipal Class Environmental Assessment (EA) for three crossings over the Grand River, including the Lorne Bridge, Brant's Crossing Bridge and the TH&B Crossing Bridge. The study encompasses an area approximately 175 metres wide starting 200 metres north of Lorne Bridge to 200 metres south of the TH&B Crossing Bridge along the Grand River. The study is intended to identify the short and long-term plans for the three Grand River Crossings. The first Virtual Public Information Centre (PIC) was held between May and July 2020. PIC #1 provided an overview of the project, including the EA process, alternative solutions being considered and criteria that would be used to evaluate the alternatives. A Frequently Asked Questions document was posted to the City's project webpage following the conclusion of the PIC# 1 process.

Presentation slides for PIC #2 were posted to the project webpage on March 18th, 2021. A live presentation for PIC #2 was hosted virtually on April 1st, 2021. PIC #2 presented the existing conditions, evaluation of alternative solutions and the recommended solution.

All documents presented during PIC #1 and PIC #2 can be accessed at:

www.brantford.ca/ThreeGrandRiverCrossings

As detailed during PIC #2, the recommended Overall Crossing Strategy includes the following recommendations for each crossing:

- **Lorne Bridge:** Rehabilitate
- **Brant's Crossing Bridge:** Replace and Raise
- **TH&B Crossing Bridge:** Rehabilitate and Remove at End of Useful Life

This document provides a consolidated question and answer list for comments submitted to the Project Team throughout the PIC #2 process. To understand the background of the Three Grand River Crossings Municipal Class Environmental Assessment, it is suggested that you review the material presented during PIC #1 and PIC #1 prior to reviewing this document.

2. FREQUENTLY ASKED QUESTIONS

Several questions and comments have been submitted to the Project Team throughout the second Virtual Public Information Centre process. The questions and comments received up to April 15th, 2021 have been responded to in the section below.

2.1 How were impacts to the natural environment considered during this study?

As part of this Environmental Assessment (EA), a Natural Environment Report was prepared to investigate vegetation, wetlands and significant valleys, wildlife and wildlife habitats, threatened and endangered species, and fish and fish habitat within the Study Area. The report also details possible impacts to the natural environment based on the alternative solutions being considered as well as recommended mitigation measures. Overall, impacts to the natural environment for the recommended solution are anticipated to be temporary and can be mitigated. The details on the mitigation measures for the recommended solution will be prepared following completion of this EA, during the design phase, which will include obtaining permits from regulatory agencies such as the Grand River Conservation Authority, Departments of Fisheries and Oceans and the Ministry of Natural Resources and Forestry.

2.2 How was the long-term vision for the City of Brantford considered during this study, including impacts to the social environment?

This EA supports the long-term vision for the City of Brantford as described in the City's Official Plan and the Transportation Master Plan. These Plans, in turn, align with Provincial policies and legislations regarding land use and growth planning. This EA study considers heritage value and use by the public, both in the interim and in the longer term. This information, in addition to other factors such as technical viability and potential environmental impacts, was used to evaluate alternatives for each crossing and to evaluate overall crossing strategies to identify a Recommended Solution.

2.3 How does this study consider the broader transportation network within the City of Brantford?

The main goal of this EA was to primarily assess the deteriorating condition and age-related concerns of the crossings. Additionally, this study examined alternative solutions to maintain or improve the pedestrian, cyclist, and vehicular connectivity needs and to accommodate the growth of Brantford identified in the City's Official Plan and Transportation Master Plan (TMP). Recommendations for the City-wide road, transit and active transportation network and other measures to address the future growth demands (such as the Oak Park Road extension) are contained within the TMP. This EA incorporates the analysis and evaluations undertaken in the TMP. The requirements for the City-wide transportation network are beyond the scope of this study.

In evaluating the alternatives to improve the active transportation connectivity in this area the option to widen the Lorne Bridge was explored, but not carried forward as the recommended approach due to the negative social and economic impacts. Also, the existing road network and bridge are considered to currently operate within acceptable levels of service.

2.4 Why was the bridge downstream of the Study Area at Veteran's Memorial Parkway not included in this EA?

The EA specifically looks at the three bridges that were identified in structural investigations as needing repairs. The Veteran's Memorial Parkway bridge was not included in this study as it was not identified as having the same structural deterioration as the other three bridges included in this EA.

2.5 There are concerns with the existing cycling facilities on Lorne Bridge. Can Lorne Bridge accommodate dedicated cycling lanes without reducing vehicular capacity?

The bridge deck was widened during the construction works in the 1980's and cannot be further widened. Adding dedicated cycling lanes to the bridge would come at the expense of reduced vehicular capacity.

2.6 There are concerns with the existing shared-use trail under Lorne Bridge, on the east riverbank. Will the trail be improved or realigned?

Trail alignment and connectivity is being investigated by the City of Brantford, outside of this Class EA. For questions related to the trail, please contact the City of Brantford.

2.7 Will pedestrian and cyclist connectivity within the study area be maintained following the implementation of the recommended Overall Crossing Strategy?

The recommended Overall Crossing Strategy would provide for vehicle isolated, accessible and convenient crossing for both pedestrians and cyclists at the current Brant's Crossing Bridge location. The replacement bridge would allow for a wider deck, similar to the width of the TH&B Crossing Bridge, that would allow cyclists space to ride across the bridge. The recommended Overall Crossing Strategy also proposes minor repairs to TH&B Crossing Bridge in the interim which will provide the cyclist facilities over the Grand River and ensure a connection is available until Brant's Crossing Bridge is reopened. Additionally, the existing sidewalks on either side of Lorne Bridge will be maintained following its rehabilitation.

2.8 Can the condition of the wood deck on the TH&B Bridge Crossing be improved?

The rehabilitation of the TH&B Crossing Bridge will include a full replacement of the existing wood deck. A variety of materials for the new deck could be explored during the detailed design phase.

2.9 The side walls of the TH&B Crossing Bridge are tall and difficult to see over as you travel across the bridge. Is it possible to lower these walls to provide a more accessible view of the area?

The recommended solution for the TH&B Crossing Bridge is to complete minor repairs to the structure, and eventually remove the structure at the end of its useful life. As the walls of this bridge are the structural element of the bridge, they cannot be opened up to provide better views; however, it may be possible to slightly raise the existing bridge deck so that users could more easily see above of these walls.

2.10 When will Brant's Crossing Bridge be re-opened?

A minor rehabilitation is required to reopen the Brant's Crossing Bridge in the short term. However, a major rehabilitation is required in order to have the bridge remain open beyond approximately 3 to 5 years. A major rehabilitation would be required to keep the crossing open for somewhere between 15 to 30 years. After that, it is expected that repairs would become ineffective and replacement would be required.

Should the recommend solution of replacing and raising the Brant's Crossing Bridge be endorsed by Council, the City of Brantford would determine if fast tracking the currently recommend replacement alternative would be more desirable than completing minor repairs that would have limited to no benefit for the new structure.

2.11 What will the Brant's Crossing Bridge look like following its replacement?

The replacement of the Brant's Crossing Bridge would include the removal of existing steel superstructure and major repairs to the concrete substructure, including adding additional height to account for flooding impacts. A new steel superstructure would then be installed on the repaired foundation. For the purposes of this study, a prefabricated steel truss has been considered as the replacement superstructure and would be somewhat similar to the existing truss structure. A staircase and ramp may be required at the east and west approaches to the bridge to provide access to the raised structure. The geometry and aesthetics of the crossing would be evaluated during the design phase of the project, following the completion of this EA.

2.12 What is the history of water or ice levels rising to the underside of the Brant's and TH&B Crossing Bridges?

According to records back to 1965, river water gauges indicated that in February of 1996 and February 2018 the underside of the bridges were submerged. Additionally, an event in February 1984 was very close to or may actually have risen to the undersides of the bridges.

2.13 What is a 100-year return period event (or 100-year storm or 100-year flood)? Do they occur only once in 100 years?

A return period represents the likelihood of a storm event occurring, in any given year. A 100-year return period event has a 1 in 100 chance of occurring, regardless of what happened in the previous year.

An example would be the chance of pulling the single red jellybean from jar of white jellybeans. The number of total jellybeans in the jar is equal to the return period event referenced. i.e., for a 100-year storm there would be 100 jellybeans in the jar.

2.14 What are the impacts of ice jams and flooding events on each of the crossings?

A Hydraulic Impact Study was completed to review the flood behaviour of the Grand River in the vicinity of the three existing bridge crossings and to identify opportunities to enhance hydraulic function of each crossing.

The Lorne Bridge meets hydraulic evaluation criteria under both 100-year return period for open water flow and ice jam events. No hydraulic improvement opportunities were present. Both Brant's Crossing and TH&B Crossing Bridges are acceptable under 10-year return period open flow events, but not under ice jam conditions.

As part of the recommended Overall Crossing Strategy, Brant's Crossing Bridge will be replaced and raised to reduce the risk of flooding impacts at the crossing to less that 1% in any given year. The TH&B Crossing Bridge will eventually be removed at the end of its useful life, at which point risks associated with flooding impacts will be eliminated at the crossing.

2.15 How was the cultural heritage environment considered during this study?

As part of this Environmental Assessment (EA), a Cultural Heritage Evaluation Report (CHER) was completed, which identified all three bridges as retaining cultural heritage attributes. A Heritage Impact Assessment is being completed to identify appropriate mitigation measures based on the recommended Overall Crossing Strategy.

2.16 What is the cost of this EA?

The current expected cost of the assessment is approximately $470,000. The EA is required based on provincial legislation prior to completing any major rehabilitative work on the bridges.